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RANCHERS EXPLORATION AND DEVELOPMENT CORPORATION

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October 28, 1983

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DIVISION OF
OIL, GAS & MINING

Mr. James W. Smith, Jr.
Coordinator of Mined Land Development
Utah Division of Oil, Gas, and Mining
Department of Natural Resources
4241 State Office Building
Salt Lake City, UT 84114

Subject: Escalante Silver Mine, Iron Co., Utah

Dear Mr. Smith:

Please pardon the delay in responding to your letter of September 2, 1983, but it has taken some time to put together the information you requested.

Using the numbered paragraphs in your letter as indices, I trust the following information is satisfactory.

1. Water Quality Data. This information is presently being submitted to the following state agencies:
   a. Division of Environmental Health (Earl Pierce)
      Utah Dept. of Health, SLC
   b. Utah State Engineer (Dee Hansen)
      SLC
   c. Utah State Engineer (Gerald Stoker)
      Cedar City

   It is voluminous data, and it is requested you contact one of these agencies to review the information.

2. Water Level Measurements. Again, this voluminous data is being submitted to the State Engineer (Dee Hansen) and to his representative in Cedar City (Gerald Stoker). Please contact them for review of the information.

3. Pumping Records

   Records showing the operating hours for each dewatering pump and each lift pump for any given month since start-up are enclosed. Average monthly pumping rates for each pump are noted.

   P1, P6, P3, P2, and P4 were wells that came with the property. Ranchers has drilled and equipped P8 and P10. P8 missed the aquifer and has never pumped more than 700 gpm. P10 is pumping consistently 4300 gallons per minute. P9, the northern-most pump, is now being drilled and should be in production by December 1983.

At the present time, three dewatering wells with a capacity of 1200 gallons per minute each are being considered. One or all of them may not be drilled. The purpose for the smaller pumps is to give more control over the water table, to provide back-up pumps when a larger pump is shut down for maintenance, and to make up for the pumping deficit caused by the failure of P8.

As the water table has been lowered in the mine, it has been necessary to lower the dewatering pumps to keep them in water. P1, P6, and P2 have been lowered to an average depth of 790 feet from the original 650 feet. P4 and P3 will be lowered by December 1983.

4. Contour Maps

As per number 2 above, this data is being submitted on a quarterly basis to the State Engineer in Salt Lake City and his representative in Cedar City. Please contact them for review of the information.

5. Aquifer Recharge System

When dewatering of the mine began in April 1981, the five original pumps produced 22,000 gallons per minute. This water was pumped south through the lift station and by way of the south canal into Shoal Creek for recharge into the valley alluviums. The mine water could not spread out over enough area in the Shoal Creek channel to permit recharging. During the summer of 1981 - when farmers used all the water pumped from the mine - recharge basins were built on 60 acres of non-farmable land leased from a farmer. These basins are located in the W½ SW¼ Sec. 19, T26S, R16W. These basins worked very well during the winter of 1981-82. All disturbed dike and borrow pits in this area were reseeded by the end of October 1981 (I might add that our pumping rates to date are less than those conservatively projected by our hydrologists).

Gravel lenses were found on property owned by Ranchers Exploration and Development Corporation in Sec. 6, T36S, R16W. During the summer of 1982, when farmers again used all the canal water from the mine, recharge basins were built in lots 14, 19, 22, and the NW¼ SE¼ of Sec. 6. A pumping rate of 30,000 gallons per minute was expected for the winter of 1982-83. Of this amount, 20,000 gallons per minute would be recharged into the alluvium on Sec. 6. The remaining 10,000 gallons per minute would be recharged to the south into the basins already constructed on Sec. 19 and along Shoal Creek.

The dewatering pump rate for winter of 1982-83 actually decreased from 22,000 gallons per minute to 19,000 gallons per minute. This decrease was due to the tightening or closing up of the water courses in the mine with depth.

During the winter of 1982-83, 16,500 gallons per minute were recharged into the alluvium in Sec. 6. The remaining 2,500 gallons per minute were pumped south into Shoal Creek at the request of Mr. Dee Hansen, the Utah State Engineer. He was anxious to have some recharge going to the south. All mine water pumped during the winter of 1982-83 could have been recharged into the alluvium of Sec. 6.

The advantages of recharging water into Sec. 6 are:

The mine saves the expense of operating pumps in the south canal lift station, and the consumption of electricity.

The pumped waters are being placed in more effective recharge areas.

The mine water recharged on Sec. 6 raised the water level in a historic water-table low in the Beryl Junction area. This low is caused by heavy agricultural pumping in that location.

Personnel at the Cedar City, Utah, office of the U.S.G.S. feel that the specific conductivity of the ground water in the Beryl area will increase yearly because of recirculation for agricultural purposes. The fresh mine water recharged on Sec. 6 dilutes the alkalies in the ground water thereby improving the water quality.

By recharging water onto Sec. 6, our mine water is kept separate and apart from the Shoal Creek drainage and flooding, therefore, precluding mine waters from contributing to flood damage caused by natural runoff.

In September 1983 a ten acre recharge basin was constructed on Lot 8 of Sec. 6. The main purpose of this basin is to move recharging water further from the mine. A second purpose is to do a better job recharging water into the historic low.

The disturbed surface of the Sec. 6 recharge basins have not been reseeded. They have been allowed to revegetate naturally. Natural revegetation appears to be more effective than reseeding. It's all weeds!

At the end of construction in October 1981, all disturbed surface areas; i.e., south canal, Shoal Creek recharge areas, all top soil storage piles, all construction roads, and some drill sites were reseeded with a mixture recommended by the U.S. Forest Service.

for how many acres

500 lbs. Crested Wheat
250 lbs. Russian Wild Rye
50 lbs. Alfalfa
50 lbs. Clover

I might mention that the State Engineer and the local water users' association have worked very closely with the mine in developing the revised water recharge scheme, and all parties involved are very pleased with the current system. This does not preclude, however, the possibility of reactivating the recharge basins in Sec. 19, T26S, R16W in the future, if needed.

6. Surface Maps

A map showing disturbed surface areas for the project is enclosed. Additionally, an updated property map is enclosed.

7. Reseeding

90% of the areas reseeded in 1981 now have vegetation growing on them as determined by visual observation. The claim is not made that 90% of the seed

germinated. Also, some of this new vegetation could be native growth and some could be the result of our reseeding.

The areas disturbed in 1981 were reseeded with:

500 lbs. Crested Wheat
250 lbs. Russian Wild Rye
50 lbs. Alfalfa
50 lbs. Clover

The recharge basins on the Holt property east of the mine are 100% revegetated with native plant life. In fact, the plant life is so dense that we have to cut it out of our basins and ditches in order for them to take water.

The 140 acres of south canal banks and all roads, top soil storage piles, and roads used in construction of the canal were reseeded in 1981 with:

500 lbs. Crested Wheat
250 lbs. Russian Wild Rye
50 lbs. Alfalfa
50 lbs. Clover

Here again we feel that 90% of the disturbed ground now has vegetation growing on it.

8. Topsoil Stockpiling

There has been no top soil loss in the recharge basin areas (either owned by Ranchers or under long-term lease). The dikes surrounding each recharge basin are constructed with top soil that was adjacent to the dike. The top soil was not removed from the bottoms of the recharge basins. When the basins are no longer needed, the dikes will simply be leveled back into their borrow areas then be revegetated. This is also true of the canal banks both for the north and south canals. The 37 acres of clay borrow pits in the tailings basin area have all been restored with their original top soil and will be reseeded this month with:

500 lbs. Crested Wheat	13.5
250 lbs. Russian Wild Rye	7.3
50 lbs. Alfalfa	1.4
50 lbs. Clover	1.4

There are approximately 60,000 yd^3 of top soil in stockpiles that have been reseeded with the 1981 seed mixture. They are 100% covered with vegetation to prevent erosion. The volume of the stockpile at the tailings basin has been increased with top soil from the expanded basin. It will be reseeded with the above mixture this month.

9. Additional Disturbed Acreage

The additional disturbed acreages are being surveyed at this time. However, the disturbed areas, as noted above, have either been reclaimed or are currently being reclaimed this fall. Topsoil has been replaced on top of the disturbed areas, and reseeding will be underway shortly.

If you have any further questions, please contact me.

Yours truly,

Mark R. Welch
Chief Engineer

MRW/cje

cc: EHH
JR
Mr. Earl Peirce-Utah Division of Environmental Health
Mr. Dee Hansen-Utah State Engineer-Salt Lake City
Mr. Gerald Stoker-Utah State Engineer-Cedar City